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This paper explores the inconsistency in preparation of first-year university students for college-level research and coursework. A survey of first-year students in North Carolina was executed to measure the availability and impact of library instruction, seeking ways that academic librarians might intervene to address gaps in student information literacy experienced by college-bound students. Librarians across the state were interviewed to explore known information needs among these students and ways that university librarians could contribute to solutions. Survey data and responses from interview subjects suggest a need to improve support for information literacy skills as students prepare for post-secondary learning. Further research is needed to develop a collaborative model involving academic librarians, faculty, and school media coordinators to define and develop the skills needed by students in their college coursework and lifelong learning.

Headings:

library orientation for students

academic libraries & faculty

information literacy education

library outreach programs

INFORMATION LITERACY WITHOUT WALLS: TOWARD A COLLABORATIVE MODEL FOR TRANSITIONAL LIBRARY INSTRUCTION

by
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INTRODUCTION

Library instruction creates a basis on which students learn to navigate the physical and virtual spaces and resources of the library. It helps students to form their research and learning practices. It creates a rapport with library staff and empowers students to ask questions and understand where, when, and whom to ask for help. Instruction challenges students to evaluate information sources both within the range of academic texts and in the often-tenuous world of commercial media, perhaps most importantly the open Web.

This paper seeks a basic level at which the academic library might maintain a presence in its larger community as a teaching resource. While public education resources become increasingly scarce, academic libraries become the bearer of the burden of building the information literacy outcomes that are required of students for success in their research and coursework. Accounts of librarians and faculty and a number of studies reveal a need for information literacy (IL) support for college-bound students. Many institutions incorporate library instruction into first-year seminar (FYS) or college writing/English courses, but two problems exist. IL training is not consistently addressed across institutions or even across programs/fields of study. Additionally, students are not reliably prepared in their K-12 curricula to begin to access and use information at the college level at the outset of their work. This can lead to difficulty as students begin post-secondary schooling and are expected to immediately begin managing their studies and assignments independently.

From the conception of this project to its completion, adjustments had to be made to explore the possibilities of a school-academic collaborative mode of library instruction. The intent of this study was to identify students and librarians in the University of North Carolina system that had been involved in such a partnership; to determine the impact of instruction programming among the students, and to explore the value and viability of those programs in conversation with librarians. It was revealed in the preparatory phases of the work that a programmatic approach to this need has yet to take root in North Carolina in a major way. However, results of the study suggest the need, impact, and most importantly the will and enthusiasm of librarians and other stakeholders to make these efforts possible.

This study explores the following research questions:

- What is the impact of secondary-school information literacy programming initiated by academic librarians? How do information search habits of those who have received pre-tertiary information literacy training compare with those who have not?

- What are the barriers to students' participation in these programs? What solutions do participants see for overcoming those barriers?

- What is the perceived value of these programs among academic librarians? What are the barriers librarians experience in creating and sustaining an outward-facing information literacy program?

BACKGROUND

The University of North Carolina System consists of 16 colleges and universities and an advanced math and science high school. The flagship campus, the University of North Carolina at Chapel Hill, was the first public university in the United States. 85% of UNC system students originate from within the state. (UNC System) This being said, any information literacy efforts undertaken by the libraries at the public universities have a primary benefit to the population of the state.

The University of North Carolina at Wilmington (UNCW) has adapted the Association of College and Research Libraries (ACRL) Information Literacy Competency Standards for Higher Education into a condensed set of student learning outcomes. These are pillars of expected competencies that are to be developed in the University's IL-intensive courses. A first-year seminar course begins the development of these skills in the general education context, and additional courses specific to students' majors reinforce IL skills. (Yeager and Pemberton, 2017)

There is one well-established library outreach program aimed at the transition to college based at UNCW, developed to serve its surrounding community through student support for the North Carolina Graduation Project.

In 1985, an Oregon high school began incorporating a senior project into the curriculum as an assessment of student abilities in research, writing, and public presentation. The teacher responsible founded the educational firm Far West EDGE, which began distributing materials for its Senior Project to high schools nationally. The North Carolina Graduation Project (NCGP) was derived from the Oregon project and

introduced in 2005 by the North Carolina State Board of Education. This is a rigorous type of capstone project for high school students and for many students, their first exposure to conducting formal research. The concept was sold to the SERVE Center at the University of North Carolina at Greensboro (UNCG) in 2002. It was disseminated across the state and expanded to the NCGP format, and adopted by most of the state. The NCGP was intended to become a statewide requirement, but this plan was abandoned in 2009. The Program Evaluation Division of the North Carolina General Assembly argued that the Graduation Project model was not being followed at some schools, and that implementing the program statewide did not justify the projected cost of $6,600,000 (Program Evaluation Division - North Carolina General Assembly, 2009). While it was not universally mandated, many North Carolina school systems have retained the Graduation Project as a culminating exercise and a requirement for students. (NCDPI, 2015)

For most students, the Graduation Project becomes their first exposure to the type of research and level of rigor that will be expected of them as they enter college. This is a form of "guided inquiry" described by Kuhlthau (2010) in which assignment of appropriate scale serves as a prompt for students to expose themselves to the range of available information and develop understanding of how knowledge is navigated, processed, and created. This concept builds from Kuhlthau's Information Search Process (2004) to identify key points in the student's research at which teachers and librarians can best support the learning process through intervention.

The execution of the project is many students' first exposure to library materials and resources. In North Carolina, the access to scholarly resources varies, but all of the

public libraries provide access to NC Live, a consortial library database which delivers a variety of materials through EBSCO, ProQuest Direct, and OCLC FirstSearch, among others.

In one school system, there is a cooperative outreach effort that has existed for more than a decade. Librarians from New Hanover County Public Library, Cape Fear Community College, and the University of North Carolina at Wilmington have pooled their resources - space, personnel, and collections - to support area high school students through their execution of the Graduation Project. These librarians introduce and promote the value of using a variety of sources: a range of scholarly materials (professional journals), newspapers and magazines, and e-books. The students are introduced to the portals for information search among the desired content repositories. The sites are demonstrated from a library laptop screen shared on a video projector. Students were instructed to use their school identification number to access the databases and other catalogs. It is made clear that they did not need a library card to access the materials through the public library portal, nor would the existence of outstanding fines on existing library cards prevent them from obtaining materials they need.

The librarian cohort noted that no standard exists for what constitutes research in the context of the Graduation Project. It varies from school to school, student to student, and teacher to teacher, and is also subject to the resources available. The librarians stressed the use of NC Live, the state's cooperative library information portal, as the most comprehensive source of materials available to the students. The librarians each took turns presenting unique resources their facilities could offer. The public librarian led off the presentation, explaining, "I love Google, there's a lot of information. Some of it is

helpful, some not. Some of it might not be true." The display at the front of the room demonstrated the some of the online library tools. A basic keyword search was used as an example, in a ProQuest database accessed through the NC Live portal. This gave students a glimpse of how the interface would look and how to navigate it; where to find and how to use features such as an abstract, translation, citation, saving and printing. "If you're planning on going to college," the librarian said, "you might as well get used to it now."

The community college librarian discussed the basic services available: computer workstations, Wi-Fi access, print and electronic resources, and borrowing cards for non-students. He also offered additional information about becoming a student, highlighting the opportunities to obtain job certification with just a few courses, as well as the cost benefit of transferring two years of community college courses to the local university in working toward a bachelor's degree. The academic librarian introduced the students to Tutor.com, an online service offering editing and critical comments for their paper drafts, with rapid turnaround and free of charge.

Though it had instructive features, the presentation was decidedly more an outreach activity than an instruction session. The impact of this type of outreach is difficult to measure. Much of the material is accessed later through a set of websites provided for groups from the various schools served by the librarian group.

The librarians sat for an informal discussion at a break between presentations. They mentioned a number of challenges to their efforts, including time and issues in speaking to classes whose students were at various points in the process of their projects, so the information needs vary between classes as well as from student to student. Even the conventional "one-shot" library instruction format is difficult to strategize in diverse

groups. There are different expectations of different students at different schools. Not all instructors in charge of the Graduation Projects require or expect students to incorporate scholarly resources as source materials. Many projects still utilize unfiltered forms of popular web media. There have been students present in the sessions for whom this was their first visit to a library. On the other hand, students in AP and IB courses tend to already be familiar with most of the materials introduced. The librarians have recruited some of the more advanced students to assist in the program, their effort approaching a form of peer mentoring. Even within these constraints, the librarians indicated an impact both anecdotally and with data from a pre/post survey performed in 2012 among one of their high school groups. In this assessment, students indicated some improvement in their awareness of the availability of resources at the various libraries, comfort level with doing research, possession of library cards, as well as reduction in anxiety approaching the library staff and resources. This program is a valuable invitation to students to engage with librarians and library resources, and it is left to the students to decide the level of their research. Each of the librarians work to develop direct point of contacts where students can obtain vital exposure to the libraries, in person or virtually. The team has evolved their materials from a set of paper handouts to a well-designed, navigable Google site that provides students links to their own school library sites and those of the public, community college, and university library; documents on library terminology, classification numbers, evaluation of resources, and additional information are also made available, including the librarians' own e-mail addresses for further questions. While it is impossible to make the libraries transparent in one presentation, they are made human, valuable, and welcoming.

LITERATURE REVIEW

Information Literacy

Information literacy finds a range of definitions in the literature. The American Library Association's definition emerges repeatedly as the standard: "the ability 'to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information'" (ALA 1989, quoted in Fabbi 2015)

In 1998, the ALA published its Nine Information Literacy Standards for Student Learning. The standards consist of three sub-standards, each with three criteria applied to students: information literacy itself, independent learning, and social responsibility. In a survey of 722 academic library directors and deans, six key priorities in academic library services were identified. The first priority was the need to "help undergraduates develop research, critical analysis, and information literacy skills." (Ithaka S+R 2016)

In 2000, the Association of College and Research Librarians published a similar, refined set of essential competencies for higher education. These were intended to dovetail into those developed by the American Association of School Librarians Task Force on Information Literacy Standards, supporting the development of a full range of IL goals for all stages of K-20 student development. The Standards, it was acknowledged, would develop differently among different students as individuals and also vary across the demands of different disciplines. Though they are interpreted and supported in a variety of ways, the general criteria have been widely adopted (ALA 2000):

- "Determine the extent of information needed"
- "Access the needed information effectively and efficiently"
- "Evaluate information and its sources critically"
- "Incorporate selected information into one's knowledge base"

- "Use information effectively to accomplish a specific purpose"
- "Understand the economic, legal, and social issues surrounding the use of information, and access and use information legally and ethically"

Latham and Gross (2008) point to two ways that motivation might be a factor in the acquisition of information literacy skills among high school students. It may be that students have not had the value of the skills made clear to them, but it also may be a false confidence - that the students do not recognize a gap in their information behaviors – hindering their acquiring proficiency.

At a more basic level, the introduction of students to library spaces and materials is consistent appears to benefit student performance more generally. Goodall and Pattern (2010) reveal a number of studies and their own research supporting a positive relation between low use of library materials and low achievement. Considering undergraduate students in general, studies have shown that library use contributes positively to a student's chances of degree completion and GPA (Primary Research Group, 2009; Soria, Fransen & Nackerud, 2013).

Instruction and Approaches

Stewart (2011) gives both a rationale and a suggested framework for information literacy assessment. The ACRL Information Literacy Competency Standards For Higher Education have been a baseline for instruction design since they were first published in 2000, and they have been a persuasive device for inclusion of information literacy into institutional learning goals. Stewart's recognized goal for the Standards is to enable

students to produce competent research, become independent critical thinkers, and achieve academic success. Accrediting bodies acknowledge importance of IL as curricular outcome.

Ercegovac urges a collaborative approach to information literacy support that involves K-12 faculty and academic librarians. As a professor of engineering, the author offers a unique perspective outside of librarianship, embedded in STEM topics and discussing relevant texts that students in the scientific realm will need to approach competently. She proposes four approaches for enhancing information literacy endeavors in the high school setting: becoming a classroom teacher to integrate IL learning into the materials; "teaching the teachers" about weaving IL into their lessons; preparing instruction materials and delivering them through various media and outreach; and "speak[ing] the teacher's language." The article does not provide a translation of these concepts into a plan, or otherwise examine their feasibility. Few are likely to become classroom teachers for the purpose of integrating IL into the K-12 curriculum, nor do existing teachers necessarily have the autonomy to make the changes needed, nor do they need to be talked down to. Ercegovac does define crucial transitional points where students require support in their information literacy development, naming the shift from high school to college as the most critical. Basic information literacy exposes students to the library catalog – the portal to books, reference materials, and other publications – as well as periodical literature and the accession and evaluation of information on the Web. The necessity and intricate craft of crediting sources are also presented. (Ercegovac 2003)

The American Association of School Librarians (AASL) and the Association of College and Research Libraries (ACRL) launched a joint Task Force on the Educational

Role of Librarians in 1998 with the primary goal of encouraging and supporting partnerships between K-12 school library media specialists and academic librarians in post-secondary institutions.

> "All educators – teachers, faculty, and librarians – share roles in helping students acquire information literacy skills effectively. Collaborative efforts that enhance the ability of these groups to fulfill their mission are imperative." (ALA, 2006)

The Task Force has proposed a framework for this effort, with base-level actions that are recommended for the two institutions, their members, and for learning institutions generally, supporting four basic concepts: collaboration, joint association activities, continuing librarian education, and outreach. (ALA, 2006)

Latham and Gross (2008) call for joint efforts between school, public, and academic librarians to generate and deliver a stronger instruction framework, and for collaboration between the school librarian and the classroom teacher to create instruction that is reinforced through interdependence of materials and tasks. An experiential model will be more effective than a formulaic approach that generates discrete skills within silos.

Islam and Munro (2006) identified a gap between the level at which academic librarians might calibrate their instruction for first-year students and the extent of skills generated in secondary schools. Within a cohort of students, there could be a group who need to be brought up to speed in identifying and using various electronic resources, and another with an established set of rudimentary research skills, whose interest is generally lost to redundancy of re-introduction to the catalogs and databases. The authors stress the need for an inquiry-based approach to information literacy instruction and interaction with school library media specialists. They highlight the need for partnership between

subject teachers, school library media specialists, and academic librarians, to reinforce the necessity of IL skills for college among the teachers and students. The authors point to the "Blueprint for Collaboration" (ACRL) for guidance of these efforts. Islam and Munro also note the need for IL instruction in teacher training, and that academic librarians advocate for this effort or even take on the task of teaching these skills to future teachers. Finally, they suggest the adoption of inquiry-based learning over teaching to the test, stitching information literacy throughout the curriculum and enabling independent learning, as a key part of the fundamentals that the students' college careers will build upon.

The ideal environment for building information literacy seems to call for a holistic approach that is student-centered. Biernacki (cited in Dempsey and Jagman, 2015, p. 99) discusses the *transmission model* of teaching, which comes into play in the planning of library instruction. Librarians are compelled to economize time and touch upon all of the concepts that are desired by faculty or local standards within a limited time frame. A group session is delivered with the same material, same content emphasis, and same timing for every student. It becomes a conveyor belt aimed at the brain, contributing to information overload or disengagement. Dempsey and Jagman's study of first-year students supports an active learning experience that allows students to self-direct their research, involving their own interests and goals they set for themselves. Open-ended cues allow an exploratory approach to research and learning, in which students create their own problem-solving methods. The authors also suggest the elimination of the pressure of a grade for students' best assimilation of library practices. Allowing the time and space to assess resources and make connections with their personal interests as well

as time for reflection on process will help students discover for themselves how they learn, rather than try to assimilate an imposed structure. (Dempsey and Jagman, p.100)

Information literacy efforts in both high school and college curricula have often had integration into academic programs as a primary goal. While applicability to the larger set of student tasks seems obvious, the conversations around IL instruction seem to isolate the targeted skills. Nichols (1999) stressed the importance of demonstrating the curricular connections to encourage vital administrative support for instruction programs. Nichols' article observes the initiation of a cooperative program to provide library instruction and exposure to IL concepts to students of several high schools in the Detroit metropolitan area.

Nichols, Spang, and Padron (2005) further developed this programming approach. They note the common underpinnings of the AASL and ACRL instruction work in information literacy, and tied IL concepts to educational technology and lifelong learning. Looking back at the initial project introduced by Nichols in the aforementioned article, they traced its continuation and expansion, including the development of related courses in Wayne State University's LIS curriculum and a summer course for high school instructors led by the education faculty of Wayne State. They outlined a list of shared benefits among the different collaborators (p.10):

- Stakeholder equality - programs should be developed collaboratively. K-12 participants must not feel put in their place by university partners.
- K-12 members reported a sense of "credibility" added to their efforts on the project stemming from the presence of university partners. On the K-12 end,

credibility and shared responsibility were enhanced by the involvement of administrative staff and classroom teachers as well as library media specialists.

- Sessions should be delivered in the media center or relevant facility to make use of familiar technology and tools, as well as a comfortable setting generally.
- Adequate support will include providing time for planning, experimentation, and curricular integration. We cannot simply provide a widget with no plan or clear purpose.
- Benefits in networking and sustained partnerships, as well as professional development.
- Beginning with a clear vision allows small strokes to create a growing benefit.
- Reach out to the university campus. The networking benefits exist within our campuses as well. (The authors cite the relationship with the WSU College of Education.)

Self-assessment

Kruger and Dunning (1999) recognized the tendency of incompetence to reinforce itself by undermining self-assessment. In four different studies, the authors found a distinct pattern among subjects given a range of cognitive tasks. Many of the low-performing subjects had perceived themselves among the top performers. Additionally, those who demonstrated high competency in the various tasks tended to underrate their abilities. The authors suggest that the simple awareness of a skills gap can be the major breakthrough toward addressing that gap, but many students do not become aware

through means such as negative feedback or peer observation. Many students do not know what they do not know.

Ambrose (2010) elaborates on this phenomenon, and suggests corrective measures to improve accuracy in the design of self-assessment tools. She recognizes the value of student self-assessment as a tool that can be employed with little anxiety for the subject. This would suggest that we might improve self-assessment by measuring more specific concepts that are displaced from their larger or more complex frameworks, and oriented to tasks and experiences that a student encounters regularly.

METHODOLOGY

This study set out to build an understanding of student experiences and competencies surrounding information literacy, as well as to collect experiences, insights and attitudes regarding information literacy efforts among library staff who have had a role in information literacy programs. A primarily qualitative approach involved a survey delivered to first-year undergraduate students electronically using Qualtrics, as well as interviews with academic librarians working in various instruction and education roles. The student survey included some quantitative measures related to instruction programs and IL self-assessment. Interviews with librarians were conducted in person or by video chat.

Sampling sought to capture a diverse range of first-year college and university students in a common locale (the UNC system) where secondary-school level

information literacy courses have been offered in local libraries or high schools, hosted/performed by academic library staff. It was not feasible to target a particular group defined by the availability of a program in their school system. Even locating a school district where this type of inter-institutional programming takes place does not aid in measuring an effect on students as they enter post-secondary settings. First-year college students are not reliably found in the same community where they attended high school.

There was a challenge to identify a consistent means of contact for survey distribution such as student e-mail listservs or student social media groups (or a combination thereof) to solicit participation. The intent was to acquire a survey group that was statewide. Difficulties with different means of access to students meant that consistent targeting was not possible on all campuses, resulting from varying policies and infrastructure from one campus to the next. Preliminary research revealed no well-developed program that had been widely applied. Thus, it was necessary to craft questions that would first determine *if* a student had been through a preparatory library instruction program before assessing the nature of the individual program and the impact on their current studies.

Ambrose et al (2010) supported the use of a self-assessment device for its ease of creation and use including scoring, and its ease of completion for the students. The study of students sought to combine a basic self-assessment of information literacy skills - determine the students' sense of their own information needs, where are they at in the process of meeting those needs - with historical questions that measure the availability of library instruction across the sample.

The student survey was deliberately designed to minimize both intrusiveness and inconvenience while obtaining meaningful data on the students' experiences. In capturing students' experiences, it was useful to combine multiple-choice questions with open-ended questions for students to determine to what extent library instruction was available to them prior to college, seeking to understand the students' perceptions of their own information needs and their own assessment of either the effectiveness of the programming they took part in. The self-assessment sought to find where students have difficulty in their studies and research, and where they think transitional library training might be of use. Each dimension of this inquiry has a range of responses, as information literacy is not a consistently supported skill. IL occupies a variety of areas in the high school curriculum to varying degrees.

The Qualtrics survey used in the study was distributed via e-mail to a convenience sample of first-year students on a single campus in the University of North Carolina system. The students were approached in their second semester, allowing them to answer questions about pre-college experiences with reasonable recall, as well as with the experience of a completed semester of college-level work to reflect on. At this point, their high school experience is still within recall, but students have had time for the adjustment to college-level work and have completed their first courses. Students would be able to reflect on struggles with information seeking and their experience with the library in their secondary-tertiary transition. Questions were written to avoid jargon or a sense of intrusion that might alienate students, and to obtain meaningful data with a minimum of time and effort by the students. The students who had received instruction were also asked if academic libraries or librarians had hosted their classes. Other questions about

their information-seeking practices and their interaction with staff and materials: types of texts sought when performing research, ability to comfortably approach librarians for assistance. The students' perspectives on the value and assessment of availability of information literacy education combined with the practices they have adopted as they enter college are subjective values that are individualized and personal. It was necessary to simplify many of the measures, creating multiple-choice questions, to maximize feedback. A small number of open-ended questions were included in the survey, seeking common experiences among students in their understanding of the research process.

The various campuses that were approached across the University of North Carolina system for permission and access to students for survey distribution had varying means of distributing messages and maintaining security in their e-mail servers. One campus has a form-based request platform for mass e-mail in which faceted selection was possible. A researcher could describe their intent and purpose for contacting faculty, staff, and students, and indicate which segments of the campus community they intend to reach. Though these features were used to separate the target audience for the study, this semi-automated platform delivered e-mail invitations to the entire university student body. IRB exemption for the study hinged on exclusion of non-adult students (those below the age of eighteen), and both undergraduates in upper grades and graduate students (outside the sampling target) received the initial invitation to the survey. The data returned from this was thus deemed unusable and the approach had to be adjusted.

One particular campus responded to the request for student contact information with the available means of selecting a quasi-random sample of first-year, non-transfer students. A modification to the IRB proposal was required. The contact information

provided included certain demographic data, including the students' age, which allowed the exclusion of students below the age of eighteen. The data returned by Qualtrics from surveys taken prior to the IRB modification and subsequent redistribution of the survey was excluded from the final dataset. This also allowed for a correction in formatting of one of the questions, whose text data entry field for an open-ended follow-up had not been enabled in the electronic survey. In this way, the initial responses proved valuable despite the need to discard the data to ensure compliance with ethical expectations as well as consistency of the sampling method.

Librarian Interviews

To complement survey data, it was necessary to understand the librarian's perspective on information literacy and the value of instruction at the transitional stage. A perfect sample would consist of personnel of academic libraries who had been directly involved in these programs for their impressions of the strengths and weaknesses and lessons learned from a staff and/or administrative perspective. However, as transitional instruction efforts are fledgling in nature, in North Carolina as elsewhere, it was necessary to get a number of perspectives on instruction from staff of libraries in different libraries in different locales with different approaches. A set of semi-structured interviews was performed with four librarians representing three different university libraries in the UNC system.

There is no formal program or set plan in the state for academic librarians to do this sort of work, and the libraries respond to user requests from their respective communities based on their own availability or schedule and the resources that are

available for instruction, whether performed on an outreach basis or hosted within the library. Contacts were made in person at the 2017 North Carolina Library Association conference in Winston-Salem, via e-mail contacts discovered in the various libraries' staff directories, as well as through the professional networks of the initial contacts.

Requests were made to librarians for in-person, one-on-one recorded interviews that were semi-structured. However, some subjects had limited availability and compromises were made to the format. A team of three librarians (two instruction librarians – one from a university and one from a community college, and one public librarian) invited observation of their collaborative outreach efforts at a high school.

Three librarians sat for in-person interviews. One librarian was interviewed via video chat and notes were taken manually. These participants varied in their roles: an instruction librarian; an undergraduate teaching and learning librarian, who had previously been a school librarian in middle and high school settings; an education librarian; and a part-time instruction associate, who met by way of video chat. The in-person interviews were recorded and transcribed. The transcriptions and notes from the interviews were reviewed for topical relevance and salient themes. The videoconference allowed only for notes to be taken manually. A set of questions was prepared prior to the meetings, but conversation was allowed to occur spontaneously, revisiting the prepared inquiry as needed.

RESULTS - Survey findings

Of 250 respondents, 103 (41.2%) indicated that information literacy training had been available to them. Of those students, 63 of 103 (61.17%) indicated they had

participated in instruction. Of the 40 who did not participate, half of the students indicated they were not aware instruction was available at the time. 19 indicated they were not interested in library instruction, and one did not respond.

53 of 101 students (52.48%) indicated that their library instruction had involved an academic librarian and/or had taken place in an academic library.

Participation in library instruction did not correlate to a significant change in students' choices of research materials. Percentage use of the library catalog showed an increase among those who had received library instruction. The use of Google for research decreased among those who had received instruction. However, neither of these were significant differences across the sample group.

Percentages of students (n = 65) who indicated they "understand very well" or "have a basic understanding" of how to cite sources and avoid plagiarism roughly doubled among those who had received library instruction (63% of respondents) from those who had not (33% of respondents). There was also an approximate doubling of students who felt "comfortable" or "very comfortable" approaching library staff between the two groups (61.5% among students who had instruction; 29.2% of those who had not).

Instruction did not seem to have an impact on students' awareness of primary and secondary sources. A reasonable understanding of the distinction between source types was shown by 26 of 34 (76.4%) students among those who had received instruction, and by 12 of 17 (70.6%) of students who had not received instruction.

Of students who had received instruction, 85 percent of respondents (114 of 134 students) believed the sessions had been "somewhat useful" or "very useful." Half of

respondents who had not received instruction (44 of 86 students) indicated they would be likely or very likely to take advantage of an instruction program were it offered.

97 students offered answers to an open-ended question that invited them to assess their own skills and suggest what skills they might have improved with prior library instruction. 57 indicated they could benefit from guidance in finding research texts. 15 noted they could use help with citation techniques. Seven students indicated they would benefit from a better access or understanding of library services. Seven students also mentioned access to resources available in the library. Six students stated they would benefit from instruction on evaluating materials. Six students also noted the need for general assistance with basic research skills. Additionally, students mentioned an effect on confidence and the feeling that they could approach the librarians for assistance.

RESULTS - Insights from Librarian Interviews

Conversations with the various librarians involved with instruction and information literacy efforts offered useful ideas and opinions from a variety of perspectives, even if the information is not generalizable or - in some cases - even directly applicable to the needs of high school students. Salient points made in multiple interviews are summarized below, arranged by topic.

Skills and resource gaps

The majority of the librarians reported feedback from their faculty colleagues noting a range of skills were students were lacking, thus unprepared for aspects of college-level work. In multiple settings and levels, there was a sense that skills should have been taught at the previous level: college skills that should be developed in high

school, high school-level skills that should have been developed in middle school, and so on. Faculty have made note of these gaps, but generally have no time for formal assessment or to develop the skills in the classroom.

Students are sometimes unable to make the conceptual leap from subject area to a defined research question. They may come to an instruction session with a topic of interest, but have difficulty reaching a more defined focus for a research assignment. One librarian commented, "They are paralyzed because they can choose anything." Students are not asking questions, and some tend to prefer having tasks assigned to them rather than exploring or working independently.

The majority of interview subjects noted the use of Google as central to the information search process among many students on both sides of the graduation threshold. Some of those students were satisfied with the first result of the first search. Some created search queries in the form of questions. This tied to a more serious ethical concern in the students' use of materials, in the perception among some that Google results did not require citation. This limited engagement in search extended to some encounters with library databases. The students would often simply perform an "everything" search on the library website's front page rather than using facets or searching specific databases.

The former school library media coordinator stated that the district she had worked in had staffed librarians at every school. Since changing roles to academic instruction librarian, she has encountered numerous students coming from schools that lacked a librarian, a library, or even books (such as in cases where a computer lab existed, but no other resources).

Two librarians who had worked with high school groups in their university libraries noted that the students were AP and IB students who came with a reasonable amount of information literacy, and used the university library's resources to do advanced research.

Instruction

Discussion of library instruction efforts across the high school-college threshold was limited. These efforts are an exception rather than a norm. In most cases, the libraries' engagement with pre-college students was more an outreach effort than proper instruction. Librarians noted that formal instruction was primarily restricted to introductory classes such as first-year seminar and college writing, followed by subject-specific embedded instruction that was tailored to faculty requests. Instruction efforts were most often described in the "one-shot" format, delivered in a single class period lasting 75 minutes or less. Students receive a basic overview of library materials, an introduction to the online resources (website and databases), and time to explore resources independently.

All of the libraries had created some online modules to support instruction efforts. One university had a four-part instruction program in an online format, based on the ACRL Framework. However, the librarian mentioned resistance to the online modules from some first-year seminar instructors, who insisted on instruction sessions *in the library*.

Coordinating instruction with faculty came with other challenges. Several librarians had a sense that information literacy was a task delegated to them by instructors,

rather than an opportunity to collaborate to meet student needs. In some cases, instruction sessions were a way for faculty to unload their classes at the library for a day.

Outreach

Information literacy training has not been developed at any of the sites as a sustained resource for high school students. Those librarians who had supported instruction outreach did so by special request. In some cases, there was an introduction to the library as part of a larger campus tour. Most librarians could see the value of extending instruction efforts to high school students, not only for skills development, but as part of an orientation to college-level study that would expose students to information resources they normally do not have access to, as well as building students' interest in higher education, creating an outreach benefit for the university.

Programming and skills assessment

Librarians noted a range of assessment tools at both ends of the instruction process, from informal faculty feedback on student skills to surveys and written course evaluations.

Preliminary assessment of students' skills tends to be informal: a conversation or cue to explore the extent of students' information literacy. One librarian suggested the need for a pre-test to be given at the outset of undergraduate study, either in the first year seminar course or even at orientation. Information literacy, she said, should be a core measure in the way that schools look at math and English proficiency. There is some useful data that may come out of students' work, but there is interest in deeper measures,

such as observing their information search process. This would give librarians the ability to calibrate their instruction appropriately for student needs.

Librarians note the value of orientation of students to the physical library space. Digital natives were said to have difficulty navigating the library and finding physical materials.

In one librarian's experience, the high school groups coming in were in advanced programs. They arrived with developed projects and were able to perform research independently, needing assistance only with printing or saving documents that they would not have access to after leaving the university library. These students tended not to show deficiencies in their information literacy.

Assessment of instruction sessions is often constrained by time. One librarian noted that return of evaluations given at the end of class could range from 90 to 100 percent, but closer to 30% of students respond with feedback when solicited afterward.

Best practices and recommendations

Librarians suggested the need to scaffold instruction to develop IL among students. This should occur across the college curriculum and that need is being addressed to varying degrees at all of the universities observed, but it was noted that IL outcomes appropriate to college-level work would be best supported going back to early high school or middle school.

One librarian mentioned a number of high school teachers calling to inquire about IL expectations in order to guide their college-bound students. She highlighted this type

of contact as a starting point for a conversation about the skills students will need as they progress to college and how those needs might be addressed using the resources that are available to the students.

Most of the librarians supported the need for a collaborative model involving communication between schools at all levels, from K-12 to community college through the university, creating benchmark goals for every level.

Several strategies were suggested, including a "train the trainer" model where academic librarians would work with middle school and high school media coordinators to explore and support the skills that are notably lacking when students come to college. The education librarian discussed supporting the development of practitioner-based research skills: "Teachers need to know information literacy concepts, but how can we wrap that within them actually looking for resources that help them craft a lesson?"

Librarians agreed that instruction should be task-oriented. There is more value in presenting instruction materials when related to an assignment. Students might be confused by an exercise that was not related back to their coursework.

Most librarians also support the use of various media – standalone online modules, video presentations, and materials embedded in online courses – to extend the reach of their instruction and reinforce their face-to-face efforts.

There were also librarians who support methods that reveal students' existing competencies. They explained that students have difficulty with a concept like *citation*, but readily grasp the foundational ideas of ownership, property, and producing information. Likewise, evaluation of information materials could be tied to everyday decisions that students make as consumers. "You all know how to apply thinking about

authority," one librarian explained. "You do it every single day when you make decisions...between this product on Amazon and the other, so how do you take that and apply it to this scary 'research' word?"

The use of non-librarians and student assistants was also recommended in support of K-12 programming by one respondent:

> "When we do the K-12 outreach, our graduate students and research assistants here help a lot with those visits. They do a lot of the teaching… We couldn't do it without the [graduate LIS] students. Without our graduate students we probably couldn't meet the demand so I do kind of the logistic piece and communicate with the classroom teacher and book the computer labs and set all of that up. Then our graduate students - I've pulled them together, we think about what do the students…how can we best serve them, what do they need to know while they're here on campus and what resources make most sense to show them? And then we sort of break apart the different pieces of the lesson and we'll each teach kind of a chunk of it and then give them some hands-on time to research and float around and help."

This is an advantage that is naturally subject to the availability of qualified assistants, as well as the funds to support them.

Challenges and Barriers

Time and space were the key barriers to expanding instruction programs. While the librarians agreed on the value of providing transitional support in the form of library instruction, most still face challenges in simply providing basic services to their own campuses. Service availability becomes increasingly constrained by finite staff hours and physical space in a university with a growing population.

The most common instruction format - the one-shot session - has its own limitations. There is a limited amount of material that can be delivered in a 50- or 75-

minute class period. There is a limited amount of material that a student can absorb in that time as well. Librarians noted that the value of an assignment-driven instruction session, often the way one-shots are delivered, are difficult to schedule, as it is easy to miss the point in a project when the student will most benefit from guidance.

Some librarians were very supportive of a collaborative model, in which instruction becomes an ongoing conversation with students and between faculty and librarians at both institutions.

Another barrier is access to library resources. Librarians noted the limited value of introducing students to resources such as scholarly journals or databases that they would not be able to use off-campus. High school instruction efforts were rooted in the open Web, including evaluation of sources found via Google and elsewhere. Additionally, librarians have been able to use NC Live (a free electronic service providing library materials, available in public, school, college, and university libraries across the state) as a transitional research platform.

DISCUSSION

The need for information literacy support for students is apparent in both the survey data and in the conversations with librarians in and around the instruction role. This need becomes apparent in the traditional four-year university path, and extends well beyond into graduate school, career and lifelong learning.

A fourth of students surveyed indicated that they had received information literacy training before entering college. A majority of students who had had instruction said to have found it useful. Instruction for students correlated with an increase in students' confidence in their ability to properly cite sources in their work, as well as an increase in students' comfort level in approaching library staff for assistance.

Students noted that prior instruction would have helped them improve their information search processes, use of proper citations, and general use of library materials.

A number of librarians interviewed stressed the need to tie information literacy work to student tasks. The use of an assignment such as the North Carolina Graduation Project creates an opportunity to develop and challenge students' information literacy skills in a way that shows a path toward college-level competencies. The erosion of this program may be a cause of IL gaps in one way, and a symptom of diminishing educational resources on the other. Where one school system may have a supplemental program that fosters IL, eliminating the need for a senior project, another may abandon the state program due to a lack of support resources – materials as well as staff – that were already contributing to knowledge gaps among students.

Competency theory suggests that there is a limit to the accuracy of student self-assessment. Further study should include more in-depth and external assessments – testing across more dimensions of the ACRL Framework and less reliance on self-assessment - to authentically test students' abilities along more of the recognized facets of information literacy, and rely less on self-perception. The assignment- or task-based approach to IL assessment may provide more meaningful information, especially in a collaborative context in which librarians and teachers are able to look at student work samples and discuss the salient information skills gaps.

Several of the librarians interviewed had a sense of the resources available in the different settings. This understanding is fundamental to programming design. Any instructional model of this kind must consider the extent of materials that students can access in each setting: lending policies for off-campus users inside and outside the university library, access to computers in the library, and access to online materials from elsewhere.

Limitations

While this study focused on the skills barrier for the transition to college from high school, several librarians mentioned outreach to lower grades, including tours and programs for middle school grades. Some suggested support for information literacy development across all levels, working toward a complete K-20 IL curriculum.

The impact of collaborative instruction on library anxiety is a much more complex matter that will warrant its own separate realm of study, in the context of the

transition to college, across primary and secondary school settings, and in support of lifelong learning.

IL skills must also be assessed and supported in community colleges. While many community colleges have their own libraries and staff performing instruction, the transition to four-year programs from community college may have its own set of challenges. One of the librarians interviewed mentioned her institution's use of an information literacy assessment for incoming transfer students. Though effective, the testing had been abandoned for lack of funding. Students entering a four-year program at the halfway point may have more difficulty meeting faculty expectations in their research and require additional skills development.

CONCLUSION

This study demonstrates the need for further exploration of a collaborative model for library instruction as a bridging effort for students as they head for college. Many state university systems have public service missions that extend beyond their own campuses, and have an opportunity to create community benefits through partnerships with K-12 schools to build cross-curricular support for information literacy.

There are common conversations between librarians, students, and faculty within the high school campus and within the college campus where needs can be assessed and addressed. The starting point for a more effective instructional method begins with sharing knowledge beyond one's campus. Academic librarians get an understanding of

instructional needs through conversations with faculty, who observe information literacy gaps in students' coursework. School librarians do likewise for their students.

Each group can gain from a better understanding of the other. The school librarian can learn what skills their students' future professors will expect of them, as well as the resources that students might take advantage of through their local college campus, from online tutorials and materials access to face-to-face instruction. The academic librarian can better understand the limits of the facilities that future freshmen are coming from, and adapt their instruction programs to create the most effective transition for incoming students.

An effective model for information literacy training, based on ongoing partnerships between school and academic instructors and librarians could build a shared knowledge base to identify crucial needs, and would be a boon for student success. This work may have positive impacts on student confidence, performance, and retention. It may not be feasible to create a perfect continuum of instruction that manages the high school-college threshold given the diversity of resources and practices between individual high schools and individual colleges and universities. However, coordination of instruction efforts should be a goal of the professionals on both sides of this crucial divide.

Given the scarcity of staff hours and other resources common to the school library and the academic library, the best model for a fully developed inter-institutional program should consist of modules that may be adopted within the means of individual communities as well as selected for the particular needs of the students. This research and previous writings support an ongoing collaboration between academic librarians and

school library media coordinators, as well as direct instruction to students by college library personnel. Where we are unable to make all of these connections, there is still a potential benefit from any one of these activities.

The partnerships and mutual support described here have potential to enrich and advance the college experience for students whose resources are limited by inequities in access. However, even a fully supported and functional instruction program – whether delivered face to face or via digital modules or some combination – does not reach everyone. Those in rural areas or any location with no access to a participating institution may still fall into the gap. This gap is extended when we account for the digital divide. Delivery of an online IL platform to all students still assumes universal computer and internet access, which has still not been fully implemented. A complete model will address the technological inequities that stem from economic inequality.

Additionally, there should be flexibility within the system to create utility for students on paths outside of the four-year trajectory. Information literacy support must be adaptable outside four-year institutions and graduate programs. Students entering community college, preparing for trades, or heading directly into the workforce, as well as lifelong learners require a foundation in IL that will enable them to continue to evolve.

APPENDIX

Student Survey – multiple-choice questions; open-ended/text response prompts are marked (*)

Was library instruction or information literacy training available to you before beginning college? (Y/N)

Did you participate in this instruction? (Y/N)

If not, why not?

It was not offered
I was not interested
I was not aware of the program at the time
I was interested, but unable to attend
Other [explain]*:

Was the training done by academic (college, community college, or university) librarians? (Y/N)

If not, where did you receive library instruction?

Public library
School library / media center
Other [explain]*:

If library instruction was not available to you, how likely would you have been to take advantage of such a program, if offered?

Very likely
Likely
Unlikely
Very unlikely

What types of resources do you use for information seeking and academic research? (Check all that apply)

Google
Other search engines [list by name]*:

Wikipedia
Library databases
Library catalog
Library finding aids
Reference librarians
Other library staff
Books
Other [explain]*:

Briefly explain the difference between a *primary* source and a *secondary* source, and provide an example of each: *

How would you describe your understanding of intellectual property and copyright, as to avoid plagiarism?

I understand very well how to avoid plagiarism
I have a basic understanding of how to avoid plagiarism
I have a limited understanding of how to avoid plagiarism
I do not understand how to avoid plagiarism

How confident are you with crediting sources properly? (Do you know when citations are necessary? Are you able to construct a bibliography?)

Very confident
Somewhat confident
Somewhat uncertain
Very uncertain

Describe how comfortable you are approaching library staff:

Very comfortable
Somewhat Comfortable
Somewhat Uncomfortable
Uncomfortable

Do you feel that an introduction to the academic library and its staff would be helpful to your understanding and use of library materials and other information resources?

Very helpful
Somewhat helpful
Not very helpful
Not at all helpful

If you have had library instruction, how useful was it to you?

Very useful
Somewhat useful
Minimally useful
Not at all useful

BIBLIOGRAPHY

Ambrose, S. A., Bridges, M. W., & DiPietro, M., Lovett, M.C., Norman, M.K., and Mayer, R.E. (2010). How Learning Works : Seven Research-Based Principles for Smart Teaching, John Wiley & Sons, Incorporated, 2010. ProQuest Ebook Central, http://ebookcentral.proquest.com/lib/unc/detail.action?docID=529947

American Library Association (2006). "Blueprint for Collaboration." http://www.ala.org/acrl/publications/whitepapers/acrlaaslblueprint (Accessed March 12, 2018)

Association of College & Research Libraries (2000). Information literacy competency standards for higher education. Retrieved 18 September 2017 from http://www.acrl.org/ ala/mgrps/divs/acrl/standards/standards.pdf.

Biernacki, R. (2012). *Reinventing evidence in social inquiry : decoding facts and variables* (p. 199 p. : ill.). New York: Palgrave Macmillan.

Dempsey, P.R. and Jagman, H. (2015). “I Felt Like Such a Freshman”: First-Year Students Crossing the Library Threshold. *Libraries and the Academy* 16, 1. pp. 89-107.

Fabbi, J.L. (2015) Fortifying the Pipeline: A Quantitative Exploration of High School Factors Impacting the Information Literacy of First-Year College Students. *College & Research Libraries*

Kruger, J., & Dunning, D. (1999). Unskilled and unaware of it: How difficulties in recognizing one's own incompetence lead to inflated self-assessments. *Journal Of Personality And Social Psychology*, *77*(6), 1121-1134. doi:10.1037/0022-3514.77.6.1121

Kuhlthau, C. C. (2004) *Seeking meaning: A process approach to library and information services,* 2nd ed. Santa Barbara, CA: Libraries Unlimited.

Kuhlthau, C.C. (2010). Guided Inquiry: School Libraries in the 21st Century. *School Libraries Worldwide* 16, 1, pp. 1-12.

Library Journal. (n.d.). Faculty and librarian opinion on how essential various library services are for students and faculty, as of 2015*. In Statista - The Statistics Portal. Retrieved March 18, 2018, from https://www-statista-com.libproxy.lib.unc.edu/statistics/711901/survey-on-necessity-of-library-services-us-canada/.

Library Journal. (n.d.). Faculty and librarian opinion on the quality of services offered by academic libraries in the U.S. and Canada in 2015*. In Statista - The Statistics Portal. Retrieved March 18, 2018, from https://www-statista-com.libproxy.lib.unc.edu/statistics/711920/survey-academic-library-service-quality-us-canada/.

North Carolina Department of Public Instruction (2015). The North Carolina Graduation Project: Standards of Quality and Verification Process for High School Accountability. Academic Services and Instructional Support Division of Accountability Services.

Smith, J.K., Given, L.M., Julien, H., Ouellette, D., and DeLong, K. (2013). Information literacy proficiency: Assessing the gap in high school students' readiness for undergraduate academic work. Library & Information Science Research 35, 88-96

Statista. (n.d.). Service priorities of academic libraries according to academic library directors in the United States in 2016. In Statista - The Statistics Portal. Retrieved March 18, 2018, from https://www-statista-com.libproxy.lib.unc.edu/statistics/715384/service-priorities-of-academic-libraries-us/.

Stewart, C. (2011). Measuring Information Literacy: Beyond the Case Study. The Journal of Academic Librarianship 37 (3), 270-272

University of North Carolina (2017). "Interactive data dashboards: enrollment." The University of North Carolina System. Accessed 4 March 2018. https://ung4.ondemand.sas.com/SASVisualAnalyticsViewer/guest.jsp?appSwitcherDisabled=true&reportViewOnly=true&reportPath=/UNG/External%20Content/Reports&reportName=EnrollmentReport

Yeager, V. and Pemberton, A.E. (2017). Ensuring a level playing field: creating an information literacy exam for transfer students. Reference Services Review 45, 3. pp. 454-471.